METHOD FOR THE CONVEYANCE OF POSTAL ITEMS
AND PACKAGE MAILBOX

The invention relates to a method for the conveyance of
postal items using an electronic parcel compartment system

5   in which, when a mailpiece is deposited, the electronic
parcel compartment system records identification information
that identifies the mailpiece and/or it generates said
identification information, and in that, during subsequent
processing steps of the mailpieces, the identification

10   information is recorded and/or evaluated in a data
processing unit that stores transport data, and the
identification information is stored in the electronic
parcel compartment system and/or in a central data
processing unit.

15

A method of this type is known from French patent
application FR 2 563 987. In this prior-art method,
mailpieces are transported to an electronic parcel compart-
ment system. The recipients of the mailpiece can identify

20   themselves as being authorized recipients at the electronic
parcel compartment system and they can then remove the
parcel.

Moreover, international patent application WO 01/31593 A1

25   discloses a locker system for delivering ordered shipments
in which the shipments are identified by means of an
identification code. When a shipment is picked up by a
recipient, the recipient is identified and a payment for the
shipment can be carried out or initiated at the compartment

30   system. In addition to the delivery of shipments, the origi-
nal recipient can also use the compartment system to return
shipments. Here, when such returns are deposited, preferably
the identification assigned to the shipment is likewise
recorded

and the original recipient is credited for the amount of the
original purchase price of the ordered product.

International patent application WO 01/00069 A2 discloses a
5 postbox in which shipments for a recipient can be deposited.
Preferably, the postbox belongs to the recipient in question
or else he can rent it for a certain period of time. Here,
it is also possible for several shipments to be deposited
consecutively into a box. The checking procedure for
10 authorizing the opening of the postbox can involve not only
the checking of the identification of the deliverer or
recipient but also access can be denied, for example, if
there is already an object of great value in the box. The
postbox is also suitable for the owner to deposit shipments
15 for pick-up and for delivery by a delivery service. Here,
the owner can place the shipment into the postbox and the
calculation of the fee charged for the transport can be
entered by the owner, after which the amount is debited from
his account. In another disclosed embodiment of the
20 invention, the deliverer removes the shipment, determines
the requisite transport fee, franks the shipment as
necessary, and initiates the debiting of the transport fee
from an account of the owner.

25 International patent application WO 01/52199 A2 likewise
discloses an electronic compartment system for the
depositing of shipments for pick-up by an authorized
recipient. When a shipment is picked up by a recipient, the
identification of the recipient is checked and, if
30 applicable, a payment for the shipment can be effectuated at
the compartment system. The payment can be made, for
example, by inserting money directly into the machine or
else the payment can be debited from a user account, whereby
the amount to be paid can depend on the size of the compart-
35 ment and/or on the

duration of the rental. The compartment system also allows the recipient to send shipments back. In this case, the original recipient places the shipment into a compartment
5   and a deliverer is informed that a shipment has been deposited for pick-up.

International patent application WO 01/141605 A3, for example, describes a device for accepting shipments, said
10   device preferably being in the area of the owner of the device. The device has a closed area for depositing small mailings such as letters, which can be inserted, for example, through a conventional mailbox slit. As a complement to this, the device has a second closed area into
15   which or from which authorized persons can deposit or remove larger shipments such as parcels.

Moreover, German Preliminary Published Application DE 100 33 664 A1 discloses a device and a method for delivering
20   ordered goods in the absence of the recipient. Here, preferably at the time of the ordering of the goods, the deliverer receives an identification key with which he is authorized to open the storage device. The access key is preferably invalid after being used and consequently can
25   only be used once.

The invention is based on the objective of further developing prior-art methods and devices in such a way that a better utilization of the capacities of the electronic
30   parcel compartment system is achieved, whereby the electronic parcel compartment system can be used to accept mailpieces and to subsequently forward the mailpieces to recipients outside of the service area of the electronic parcel compartment system.

According to the invention, the objective is achieved by a method according to the independent Claim 1. Practical refinements of the invention are found in the subordinate

5   claims 2 to 7.

The invention provides that, when a mailpiece is deposited, the electronic parcel compartment system records identification information that identifies the mailpiece

10   and/or it generates said identification information, and in that, during subsequent processing steps of the mailpieces, the identification information is recorded and/or recorded and evaluated in a data processing component that stores transport data.

15

The execution according to the invention of the method, or the configuration according to the invention of the electronic parcel compartment system, make it possible to use the electronic parcel compartment system to accept

20   mailpieces and to subsequently forward the mailpieces to recipients outside of the service area of the electronic parcel compartment system.

This means in particular that the electronic parcel

25   compartment

subsequently forward the mailpieces to recipients outside of the service area of the electronic parcel compartment system.

This means in particular that the electronic parcel compartment system can be

5   used for dispensing mailpieces as well as for receiving mailpieces. In this manner, storage capacities of the electronic parcel compartment system as well as the transportation space in means of transportation such as, for example, vehicles, are used more effectively for the conveyance of the mailpieces.

10   Preferably, a deliverer removes mailpieces from the electronic parcel compartment system that are there temporarily and that are intended for further transport within a logistic system and said deliverer then deposits mailpieces into the electronic parcel compartment system that can subsequently be picked up by users of the electronic parcel compartment system in the area of the electronic parcel compartment

15   system.

Preferably, the invention allows the most flexible possible filling of the compartments as well as the utilization of the fact that the available storage capacity of the electronic parcel compartment system is increased in that mailpieces meant for

20   further transport in the logistic system have been removed.

An especially preferred embodiment of the invention is characterized in that the identification information is recorded when the mailpiece is deposited as well as when the mailpiece is removed from the electronic parcel compartment system.

25

Fraudulent use of the electronic parcel compartment system is prevented in that only mailpieces that have been properly recorded are forwarded to a subsequent conveyance cycle.

5   In an especially preferred embodiment of the invention, before being delivered to the parcel compartment system, all of the mailpieces already have the identification code and/or the address sticker. This is especially the case with returned items.

An especially preferred embodiment of the invention is characterized in that

10   the same means can be used for the transmission of the event information about the delivery and/or pick-up of mailpieces that can also be used for the transmission of the identification information.

Both variants entail specific advantages. For example, the shared transmission

15   of the information about the pick-up or the delivery of the mailpieces and the simultaneous transmission of the identification information allows comprehensive shipment tracking.

A combination of the various transmission means results in the highest

20   possible assurance of payment for the shipping company that operates the logistic system as well as in the most comprehensive possible shipment tracking.

Moreover, a combination is suitable for returned items as well as for already franked shipments such as, for example, prepaid parcel products. It is also possible to

25   establish and utilize a separate parcel stamp for the delivery of parcels to electronic

parcel compartment systems or to adapt the current payment model of the freeway

parcel stamp so as to attain a purely size-dependent scale.

Preference is given to the acceptance of franked mailings, especially since the

5   service at the machine can be completed relatively quickly in this case. The customer

merely has to scan the label into the machine.

It is especially advantageous if the customer with the parcel acceptance

function has the possibility to select a sender within the Deutsche Post World Net

10   corporation. For example, after the shipment has been properly deposited, the

customer can preferably choose between several types of delivery. Here, for instance,

a 'normal delivery' and an 'express delivery' can be available as choices. If the cus-

tomer selects 'express delivery', he might then be requested to pay an appropriate

additional amount by means of an EC card or money card. The procedure in the case

15   of an express delivery can then, for example, be that the electronic parcel com-

partment system triggers a notification (by SMS or e-mail) with the necessary

information (where the shipment can be picked up, by when the shipment has to be

delivered where, …) to the logistic company. Consequently, with the modality of

express deliveries, a prompt pick-up of the shipment can be ensured.

20

Additional advantages, special features and practical refinements of the

invention are found in the subordinate claims and in the description below of

preferred embodiments, making reference to the drawings.

The drawings show the following:

Figure 1   a block diagram with an especially preferred acceptance modality of parcels with an Identcode,

5

Figure 2   a block diagram with an especially preferred acceptance modality of parcels with a specific Identcode, and

Figure 3   a block diagram with an especially preferred acceptance

10   modality of parcels and packages.

Franking of shipments

If only franked shipments can be accepted at the machine, then they have to be

15   sufficiently franked.

Numerous senders enclose return labels, including return codes, with their shipments. Return codes are separate sets of numbers that are assigned only to returns. The transport costs for return codes are invoiced by the Deutsche Post subsequently

20   (that is to say, after the recipient has sent the shipment back to the sender).

The sender – depending on the goods management system or customer administration system – associates the return codes to the order. This means that, by knowing the return code, the sender can identify the shipment or the possible contents

25   of the returned items.

The sets of numbers of the Identcodes and return codes of business customers

of the Deutsche Post are stored in a central database. A link to this database allows the

Identcodes or return codes to be checked. If the return codes are known in the system,

5   they can easily be forwarded to the sender. Thus, for example, the additional service

"notification of the returns" could be offered to the senders.

Sending parcels

10   a)   ELECTRONIC PARCEL COMPARTMENT SYSTEM variant

The shipment has to have an Identcode. The Identcode is scanned into the

machine and checked on the basis of the check digit logic. If the Identcode is correct,

the shipment can be accepted. If the scanned code is not correct or if it is not an

15   Identcode, then the placement of the shipment is refused.

In an especially preferred embodiment of the invention, not only the Identcode

but also a routing code (Leitcode) that is applied onto the shipment is checked. Here,

the routing code is advantageously checked for the number of digits, hash value and

20   for specific return product codes that constitute part of the routing code. This

increases the security in the checking of return shipments and the customer is

requested, for example, to scan both barcodes on his return sticker.

b)   New parcel stamp

A conceivable further refinement for the acceptance of parcels is the

acceptance of shipments with certain Identcodes and routing codes (or return codes)

5   that can be checked by the electronic parcel compartment system. For example, in a

manner similar to the freeway stamp, there could be an PARCEL COMPARTMENT

SYSTEM *STAMP* – one price for all parcels or a price scale on the basis of the

compartment size – that would no longer be calculated as a function of the size and

weight.

10

Each *FREEWAY STAMP* contains an Identcode. The sets of numbers used for

each label (S, M, L, XL, F) are related directly to the size of the compartment (S, M,

L, XL). If an Identcode of a *FREEWAY STAMP S* parcel stamp is scanned in, only a

small compartment opens. If all of the small compartments are occupied, then the next

15   larger compartment opens as needed.

Acceptance of parcels with an Identcode

A block diagram depicting an especially preferred acceptance modality for

20   parcels with an Identcode is shown in Figure 1. Only parcels – that is to say,

shipments for which verification of the identity is required – are accepted in the

electronic parcel compartment system. A correct Identcode and routing code are

needed to open the compartment.

Especially preferred embodiments:

- logic for IDC check

- logic for routing code check including product check

5
- set-up of a scanning process in the machine that is reliable and simple

for the customer

- simple, self-explanatory or intuitive machine operation

Sequence:

10   1.   The LogIn procedure is successfully completed by the customer.

2.   The user chooses in the menu between 'remove parcel' (only appears if

the user has parcels in the machine) and 'deposit parcel' (only appears if compart-

ments are free and if the user is authorized to deposit parcels)

3.   The user chooses 'deposit parcel' and is prompted to scan in the two

15   barcodes (Identcode and routing code) of his shipment. (If the scanning fails, it is

preferable if manual entry is possible.)

4.   Both codes (Identcode and routing code) are checked on the basis of

the check digit.

5.   If the codes are correct, the user is optionally asked about the type of

20   delivery.

6.   The user is prompted to select a compartment size.

7.   After selection of the size, an appropriate compartment is opened.

8.   The user deposits the parcel and closes the door.

9.   The machine prints a receipt (information: postal number; number of the electronic parcel compartment system; date and time of day; IDC; compartment number; logistic provider).

10.   The user removes the receipt.

11.   The parcel data (see 9.) is forwarded to the Post24 System. From there, the information of the logistic provider can be initiated, if applicable.

Acceptance of parcels with an Identcode

Risks

•   shipments might be insufficiently franked

•   shipments might be incorrectly addressed

•   different shipments from what the scanned-in codes (Identcode and routing codes) would lead to expect might be deposited (e.g. shipments without IDC)

•   final customers might not be good at handling scanners

Various embodiments for the electronic parcel compartment system

In addition to the DPWN customer model, other embodiments are also conceivable. In the embodiment of the DPWN, it is necessary to identify the recipient. Over a certain period of time, the Deutsche Post has to be able to substantiate to whom which shipment was given (only with shipments for which verification of the identity is required).

Requirements

DPWN customer model

5   Existing concept for customer-specific depositing and picking up of goods in

and at electronic parcel compartment systems.

Here, the unambiguous identification of each parcel recipient is important.

Each user who can pick up parcels has to be registered. For this purpose, the postal

10   address is verified by means of an address check and the identity of the customer is

verified on the basis of the PostPIN received by registered letter. In this manner, all

customer data is verified. Unverifiable customers are not accepted.

Shipments are only deposited for (known and registered) recipients.

15

It is especially advantageous for the deliverer to indicate the postal number

when the shipment is deposited since this allows a notification to be sent to the

recipient.

20   At the machine, the user identifies himself with his postal number and his

PostPIN. In this way, the electronic parcel compartment system knows who the

person picking up each parcel is.

Prerequisites

- address has been checked

- customer identity has been verified

- customer is registered

5
- shipment is addressed to customer (with postal number)

- shipment was deposited into the machine correctly

- customer login to the electronic parcel compartment system was

concluded successfully

10   Sequence

1.   The address contains the postal number of the recipient.

2.   The deliverer deposits the shipment, indicating the postal number.

3.   On the basis of the recipient identity, the notification can be initiated.

15   4.   The customer logs in at the machine with his postal number (gold

card).

5.   He identifies himself by entering his PostPIN.

6.   If the checking of the postal number / PostPIN combination is

successful, the customer can use the electronic parcel compartment system. If the

20   combination is not correct, the customer is refused access.